

# REPORT ON BOILERS.

No. 93536

Received at London Office - 9 MAR 1936

Date of writing Report 19 When handed in at Local Office 6/3/1936 Port of NEWCASTLE-ON-TYNE

No. in Reg. Book. Survey held at Newcastle on Tyne Date, First Survey 27 Aug. 1935 Last Survey 5th Mar. 1936

on the Steel S.S. Motorship "MACTRA" (Number of Visits) Tons {Gross 5267.6193 Net 3627}

Master Built at Newcastle (Walkers) By whom built Swan Hunter & Wigham Richardson Ltd Yard No. 1511 When built 1936

Engines made at Newcastle (St Peters) By whom made R & W Hawthorn Leslie & Co Ltd Engine No. 3852 When made 1936

Boilers made at do (Walkers) By whom made Swan Hunter & Wigham Richardson Ltd Boiler No. 1488 When made 1936

Nominal Horse Power Owners Anglo Saxon Petroleum Co Ltd Port belonging to LONDON.

## MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Coy of Scotland, Furnace plates by Parkhead A.S.C. Rotherham (Letter for Record)

Total Heating Surface of Boilers 2565 sq ft Is forced draught fitted Yes Coal or Oil fired oil & Waste heat.

No. and Description of Boilers One 3 furnace multi-tubular Scotch Working Pressure 180 lbs/sq

Tested by hydraulic pressure to 320 Date of test 11/12/35 No. of Certificate 654 Can each boiler be worked separately

Area of Firegrate in each Boiler oil fired No. and Description of safety valves to each boiler Two Spring loaded Super High Lift type

Area of each set of valves per boiler {per Rule 9.61 sq in as fitted 9.8 sq in Pressure to which they are adjusted 180 lbs Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No main Boiler (oil Engines)

Smallest distance between boilers or uptakes and bunkers or woodwork Is oil fuel carried in the double bottom under boilers Boiler on flat above E.R.

Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 14'-5 3/16" Length 11'-4 1/2" Shell plates: Material Steel Tensile strength 29-33 tons

Thickness 1 5/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end 1 5/16" inter. 1 5/16" long. seams 1 3/16" Pitch of rivets {4.417" 8 1/4"

Percentage of strength of circ. end seams {plate 70.28% rivets 42.02% Percentage of strength of circ. intermediate seam {plate rivets

Percentage of strength of longitudinal joint {plate 85.60% rivets 86.32% combined 88.47% Working pressure of shell by Rules 182 lbs/sq

Thickness of butt straps {outer 7/8" inner 1" No. and Description of Furnaces in each Boiler 3 Morrison Suspension Type

Material Steel Tensile strength 26 to 30 tons Smallest outside diameter 3'-8 3/8" (44 3/8")

Length of plain part {top 8 3/4" bottom 2'-4 3/8" (c.c. bottom). Thickness of plates {crown 9/16" bottom 1" Description of longitudinal joint fire weld

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 184 lbs

End plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1/8" Pitch of stays 19" x 16 3/4"

How are stays secured Screwed thro plates, & nuts inside & outside Working pressure by Rules 182 lbs

Tube plates: Material {front Steel back Tensile strength {26 to 30 tons Thickness {1 3/16"

Mean pitch of stay tubes in nests 9.726" Pitch across wide water spaces 14 3/16" x 7 7/8" Working pressure {front 189 lbs back 249 lbs

Girders to combustion chamber tops: Material Steel Tensile strength 28 to 32 tons Depth and thickness of girder

at centre 9" x 1 1/4" Length as per Rule 30 17/32" Distance apart 9 1/2" No. and pitch of stays

in each 3 @ 8" Working pressure by Rules 184 lbs Combustion chamber plates: Material Steel

Tensile strength 26 to 30 tons Thickness: Sides 3/4" Back 25/32" Top 3/4" Bottom 1"

Pitch of stays to ditto: Sides 8" x 7 1/2" Back 9 1/2" x 8 1/2" Top 9 1/2" x 8" Are stays fitted with nuts or riveted over Nuts over.

Working pressure by Rules 190 lbs Front plate at bottom: Material Steel Tensile strength 26 to 30 tons

Thickness 1" Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 15/16"

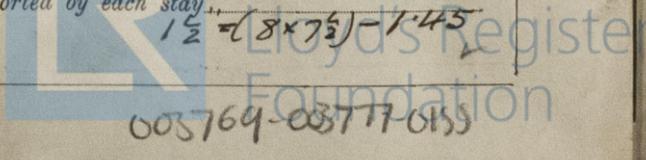
Pitch of stays at wide water space 14 1/2" x 8 1/2" Are stays fitted with nuts or riveted over with nuts

Working Pressure 256 lbs. (min), Main stays: Material Steel Tensile strength 28 to 32 tons

Diameter {At body of stay, 3" dia No. of threads per inch 6 Area supported by each stay (19 1/2" x 17 1/2") - 6.1

Working pressure by Rules 200 lbs Screw stays: Material Steel Tensile strength 26 to 30 tons

Diameter {At turned off part, 1 5/8" x 1 1/2" No. of threads per inch 9 Area supported by each stay {1 5/8" = (9 1/2" x 8") - 1.7 1 1/2" = (8" x 7 1/2") - 1.45



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Working pressure by Rules 205 lb Are the stays drilled at the outer ends No Margin stays: Diameter <sup>At turned off part,</sup> <sub>or</sub> 1 7/8; 1 3/4; 1 5/8  
 No. of threads per inch 9 Area supported by each stay (9 x 9 1/4) - 1.7 Working pressure by Rules 186 lb  
 Tubes: Material IRON External diameter <sup>Plain</sup> 2 3/4 o/d Thickness <sup>9 WG</sup> 3/8, 5/16, 1/4 No. of threads per inch 9  
 Pitch of tubes 3 15/16 x 3 55/64 Working pressure by Rules 183 lb Manhole compensation: Size of opening in shell plate 16" Section of compensating ring 21 x 1 5/32 No. of rivets and diameter of rivet holes 32 of 1 3/8" dia  
 Outer row rivet pitch at ends 9 7/8 Depth of flange if manhole flanged 2 3/4 Steam Dome: Material none  
 Tensile strength \_\_\_\_\_ Thickness of shell \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_  
 Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Percentage of strength of joint <sup>Plate</sup> <sub>Rivets</sub> \_\_\_\_\_  
 Internal diameter \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of stays \_\_\_\_\_  
 Inner radius of crown \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_  
 How connected to shell \_\_\_\_\_ Size of doubling plate under dome \_\_\_\_\_ Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell \_\_\_\_\_

Type of Superheater None Manufacturers of <sup>Tubes</sup> \_\_\_\_\_ <sub>Steel castings</sub> \_\_\_\_\_  
 Number of elements \_\_\_\_\_ Material of tubes \_\_\_\_\_ Internal diameter and thickness of tubes \_\_\_\_\_  
 Material of headers \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_ Can the superheater be shut off and the boiler be worked separately \_\_\_\_\_  
 Is a safety valve fitted to every part of the superheater which can be shut off from the boiler \_\_\_\_\_  
 Area of each safety valve \_\_\_\_\_ Are the safety valves fitted with easing gear \_\_\_\_\_ Working pressure as per Rules \_\_\_\_\_  
 Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure \_\_\_\_\_  
 tubes \_\_\_\_\_, castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks or valves fitted to free the superheater from water where necessary \_\_\_\_\_

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes  
 SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.  
 The foregoing is a correct description,  
 G. J. Huxford <sup>Manufacture</sup> <sub>DIRECTOR</sub>

Dates of Survey <sup>During progress of work in shops - -</sup> <sub>while building</sub> <sup>During erection on board vessel - - -</sup> See machy report. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) 21/6/35  
 Total No. of visits \_\_\_\_\_

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. M/S ELONA. Nwr. Rpt No. 93417.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)  
The Boiler has been constructed under special survey in accordance with the Rules and approved plan.  
The materials and workmanship are good, and the boiler was found satisfactory under hydraulic test.  
The Boiler has been fitted on board and the Safety valves were adjusted under steam, and the vessel is eligible for the notation DB. 180 lb.

Survey Fee ... £ See machy Rpt. When applied for, 19  
 Travelling Expenses (if any) £ \_\_\_\_\_ When received, 19

A Watt  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 13 MAR 1936  
 Assigned See Nwr. Rpt. 93536

